

Recycling – secondary material price indicator

Statistics Explained

*Data from March 2025
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Highlights

In 2024, average prices of secondary materials were: 95€ /tonne for glass, 156€ /tonne for paper and cardboard, and 321€ /tonne for plastic. Compared to 2023, prices increased by 18% for paper, nearly 4% for glass, and decreased by 4% for plastic.

In 2024, compared to 2023, the weight of secondary waste materials traded increased by 2% for plastic, 1% for paper, while it decreased by 7% for glass.

In 2024, the highest prices were recorded for the following flows: 353€ /tonne for import-intra of plastic with the highest trade volume, 176 € /tonne for extra-EU imports of paper and 154 € /tonne for extra-EU exports of glass waste — both of which had the lowest trade volumes. This article presents indicators on the volumes and prices of recyclables in the [European Union \(EU\)](#). The purpose is to provide relevant data and to give a broader overview of the market for secondary materials. Secondary materials are waste materials that are recycled and can be used in manufacturing processes, either instead of or alongside 'virgin' raw materials.

The indicators consider the average monthly volume of trade in secondary materials (thousand tonnes or million tonnes) and their average monthly prices (€ /tonne). The analysis is based on international trade in goods statistics and monitors exports between EU Member States and countries outside the EU (extra-EU) and imports from EU Member States and non-EU countries (intra-EU, extra-EU). The intra-EU exports are not calculated in order to avoid double counting the volumes from intra-EU trade. The price indicator is presented in a way similar to other market-price related indicators, such as energy import prices.

In contrast to the established markets for steel and aluminium scrap, markets of waste from materials originally used for consumer-related packaging (such as glass, paper and cardboard, and plastic) are frequently less observed. Therefore, this analysis focuses on these materials. The indicators are relevant to stakeholders concerned with long-term performance of secondary-material markets, as well as to policymakers developing recycling strategies in the circular economy. Both elements, trade volumes and prices, are shown within the same graphs to highlight current trends and volatility.

General overview

The data for glass, paper and cardboard, and plastic show that the prices of recyclables have varied significantly over time. Over the last decades, the most notable change was a sharp reduction in secondary material prices for paper and cardboard, and plastic during the financial crisis of 2008-2009. However, average annual figures for trade within the European Union (EU) suggest that the markets for most secondary materials were not substantially affected.

The data also show that, for paper, traded for recycling, the price recovered after the sharp drop seen throughout 2009. The price for paper waste dropped significantly in 2009 but bounced back to levels higher than before reaching its peak in 2022 after the COVID-19 period. The lowest price for traded glass waste was fixed in 2012, the following years it fluctuated at the average levels until it peaked in 2023-2024. For plastic waste the lowest price

level was fixed in the COVID year 2020, but in 2022 price changed significantly and was the highest, following by the lower price levels in 2023-2024.

By the secondary materials volumes, paper and cardboard as well as plastic fluctuated slightly from 2020 [U+2012] not exceeding 4% threshold. Glass had a 14% increase in 2022, followed by 3% decrease in volume in 2023, and recovered again showing 7% increase in 2024.

The following sub-sections present the price and trade volumes for glass, paper and cardboard, and plastic. The data and figures are updated regularly on the Eurostat dedicated website on waste statistics.

Average trade volumes

Figure 1

Figure 2 **Glass**

Annual averages of monthly volumes for secondary glass materials from 2004 to 2024 are presented in Figure 1. From January 2019 to December 2024, monthly data are displayed in Figure 2, highlighting fluctuations in the volume data.

In Figure 1, EU trade in secondary glass materials (red line – annual average of monthly volumes) shows an increase from an average of around 156 000 tonnes/month in 2004 to 311 000 tonnes/month in 2023 and 288 000 tonnes/month in 2024. The monthly trade data (Figure 2, red line) demonstrates high fluctuations. The highest trading volume was observed in March 2023 with 355 000 tonnes, the second highest volume recorded in August 2023 with 352 000 tonnes, the peak for 2024 observed in August at 333 000 tonnes. Detailed data (not displayed in Figure 2) show that the cross-border trade volume is dominated by intra-EU trade of glass materials for recycling. Extra-EU export trade is minor for glass (9% of total trade volume in 2024).

Paper and cardboard

Annual averages of monthly volumes for secondary paper and cardboard materials are shown from 2004 to 2024 (blue line, Figure 1). From January 2019 to December 2024, the data are also displayed on a monthly basis to highlight fluctuations (blue line, Figure 2).

In Figure 1, the traded volume (blue line) increased steadily from 2004 to 2011. The highest average traded volume was recorded in 2009 and 2017, with 1.90 million tonnes/month. The annual average of monthly trade fluctuated between 1.30 and 1.90 million tonnes/month in the other years. The monthly volume (Figure 2 blue line) shows the fluctuations around the 12 months' averages, with the monthly volume rising to a high of 1.95 million tonnes in October 2019 before falling to 1.43 million tonnes in December 2019. In 2024, the highest volume (1.84 million tonnes) was recorded in October.

Monthly volume fluctuated between 1.43-1.91 million tonnes throughout the entire period. The annual average for 2024 remained stable at approximately 1.70 million tonnes.

Plastic

Annual averages of monthly volumes are given from 2004 to 2024 (golden line, Figure 1). From January 2019 to December 2024, data are also displayed on a monthly basis, highlighting fluctuations over the years (golden line, Figure 2).

In Figure 1, the traded volume for secondary plastic materials (golden line) grew continuously from 2004 to 2016, with the only exception being a slight decrease to 410 000 tonnes/month in 2013. The peak volume was recorded in 2016 with an average of 477 000 tonnes/month. The traded volume tailed off in subsequent years, falling to 389 000 tonnes/month in 2018, 393 000 tonnes/month in 2019 and 384 000 tonnes/month in 2020, before rebounding to 412 000 tonnes/month in 2022 and 414 000 tonnes/month in 2024. Within last 2.5 years, the volatility in the volumes traded was also significant. In 2021, spikes were observed in November (458 000 tonnes); the peak volumes of the period were recorded in March 2022 (465 000 tonnes); in 2024, the highest level was in October

(462 000 tonnes). Between 2018 and 2024 the lowest monthly volume was recorded in January 2021, with 313 000 tonnes. After that, the volume fluctuated in a range between 326 000 tonnes and 465 000 tonnes.

During the period from January to December 2024, a recovery in volume was observed, averaging 413 615 tonnes/month.

Average prices

Figure 3 Figure 4 Glass

Annual averages of monthly prices for secondary glass materials from 2004 to 2024 are presented in Figure 3. From January 2019 to December 2024, monthly data are also displayed, highlighting the fluctuations in the price data (Figure 4).

Figure 3, the red line shows the development of the annual average prices (simple average of the monthly prices over the year), while the red line in Figure 4 shows the monthly prices. The annual average of monthly prices fluctuated between 55 and 95€ /tonne during the period 2004-2024 with its peak at 95€ /tonne in 2024. For monthly data from January 2019 to December 2024, the highest price observed in March 2024 (108€ /tonne). After that, monthly prices stabilised between 84-101€ /tonne for the rest of the year (the annual average for 2020 was approximately 58€ /tonne; while for 2024 - 94€ /tonne). Throughout the observed period, notable peaks occurred in February 2023, March 2023, and December 2023, with prices reaching 100€ /tonne, 107€ /tonne, and 102€ /tonne, respectively.

Paper and cardboard

Annual averages of monthly prices for secondary paper and cardboard materials are shown from 2004 to 2024 (blue line, Figure 3). From January 2019 to December 2024, the data are also displayed on a monthly basis to highlight fluctuations (blue line, Figure 4).

The price data (Figure 3) do not follow the same trend as the data on traded volume. During the economic crisis, the average price dropped from 121.8€ /tonne in 2008 to around 88.8€ /tonne in 2009. The price rebounded sharply through 2010 and 2011, peaking at 165.7€ /tonne in 2011, before trailing off in the following years. In 2017, the average price over the year climbed to a high of 159€ /tonne, but fell sharply to 105€ /tonne in 2020, before rebounding to 184€ /tonne in 2021 and peaking at 208.1€ /tonne in 2022. There was another decrease in 2023 to 132€ /tonne and finally was recorded at 156€ /tonne in 2024. Over the most recent period, there was a sharp decline in the monthly prices from around 134€ /tonne in January 2019, falling month-by-month to around 83€ /tonne in January 2020. However, a rebound was observed in the next months coinciding with the COVID-19 pandemic, growing to 213€ /tonne in November 2021, and reaching its maximum over the whole period at 245€ /tonne in July 2022 before taking another decrease with the price fluctuation over the following months of 2022-2024, finally reaching 147€ /tonne in December 2024.

Plastic

Annual averages of monthly prices are given from 2004 to 2024 (golden line, Figure 3;). From January 2019 to December 2024, data are also displayed on a monthly basis, highlighting fluctuations over the years (golden line, Figure 4).

The price of secondary plastic materials depends, on the one hand, on the supply and demand of secondary plastic material and, on the other hand, on the crude oil price, which strongly influences the price of the virgin (primary) material.

The indicator (golden line) shows an increase in the price of secondary plastic materials between January 2021 and July 2022 with prices rising from 233€ /tonne to 545€ /tonne. Before that period, prices for plastic were more stable and fluctuated between 219 and 310€ /tonne, with the lowest price recorded at 219€ /tonne in July 2020. Since then, the price increased to an average of 327€ /tonne in 2021 and further rising to 472€ /tonne in 2022, before decreasing to 321€ /tonne in 2024.

Monthly prices continued to fluctuate over the years. However, a constant fall with slight price fluctuation was observed between July 2022 and December 2023, with the most notable exception in March 2023 (402€ /tonne). The price dropped from its peak of 545€ /tonne in July 2022 to a much lower level at 309€ /tonne in December 2024.

Average price indicator and trade flows

Trends in material prices and trade flows can give additional information about the recycling economy.

Glass

Glass is a heavy and low-cost material. As a result, transport costs constitute a considerable share of the total costs when trading in waste glass. Consequently, the trade volume is low compared to the overall recycling volume. Moreover, most trade occurs between neighbouring countries, which limits the transport distances and transport costs, therefore, extra-EU export volumes are also low (Figure 5).

Figure 5 For paper and cardboard, and plastic, the data show a more complex picture.

Paper

Figure 6 shows the EU trade volume of secondary paper and cardboard materials according to trade flows. For paper and cardboard materials, intra-EU trade increased from 9.09 million tonnes in 2004 to 13.67 million tonnes in 2021. During the period the period from 2013 to 2015, intra-EU trade volume fell below 12 million tonnes per year. It then stabilised at around 12.7-12.9 million tonnes per year from 2016 to 2019. In 2020, intra-EU trade dropped below 12 million tonnes before rebounding to 13.67 million tonnes in 2021.

However, it fell again to 11.68 million tonnes in 2023. In 2024, intra-EU trade volume increased to 12.93 million tonnes.

Extra-EU export volumes for secondary paper and cardboard materials are relatively lower and stable. Extra-EU exports grew significantly from just 4.71 million tonnes/year in 2004 to close to 9.59 million tonnes/year in 2009. However, this dropped to between 6 and 8 million tonnes/year in the period 2010-2020. In 2021 and 2022, extra-EU export volumes continued falling below 5 million tonnes.

The volume of paper and cardboard waste exported outside the EU increased to almost 7 million tonnes in 2023 and decreased to 5,5 million tonnes in 2024.

Throughout the observed period, the volumes of extra-EU imports were significantly lower compared to intra-EU imports and extra-EU exports. The peak volume for extra-EU imports was 2,7 million tonnes in 2022.

Figure 6 The price indicator for secondary paper and cardboard materials in the EU broken down by trade flow, is shown in Figure 7. The prices of all three categories show similar trends. Due to the inclusion of transport costs, import prices tend to be higher than export prices, with few exceptions during the period from 2017 to 2021. Overall, during the period from 2004 to 2024, peak prices for all three flows were recorded in 2022.

Figure 7 Plastic

The developments of the trade flows for secondary plastic materials are shown in Figure 8. The overall trend differs from that of secondary paper and cardboard materials in Figure 6. Extra-EU imports of plastic waste amounted to approximately 179 000 tonnes in 2004 and rose to 735 000 tonnes in 2019. It fluctuated between 610 000 tonnes and 779 000 tonnes from 2020 to 2024, reaching its peak at 818 000 tonnes in 2022.

From 2009 to 2010, the volumes imported from outside the EU nearly doubled, reaching 487 000 tonnes in 2010. A steep increase with few exceptions was also observed from 2011 (494 000 tonnes) to 2015 (685 000 tonnes).

Intra-EU imports in secondary plastic materials stood at approximately 806 000 tonnes in 2004 and increased to more than 3 million tonnes by 2022. In 2024 intra-EU trade in secondary plastic materials amounted to 2.7 million tonnes.

Extra-EU exports rose from 1.25 million tonnes in 2004 to around 2.7 million tonnes in 2009, more than doubling over that period. However, the exports of secondary plastic materials fell sharply to 2.16 million tonnes in 2017 and continued their steep decline to 1.1 million in both 2021 and 2022. This decline reflected China's decision, as of 1 January 2018, to ban imports of secondary plastic materials, along with several categories of solid secondary materials. In 2024, exports showed an increase, recording a volume of 1.5 million tonnes.

Figure 8The development of the specific price of secondary plastic materials by trade flow is shown in Figure 9. The trend differs significantly from that of paper. The higher price observed in the intra-EU trade of secondary plastic materials throughout the period of 2004-2024, except for 2022, suggests that the quality of this material was better than that imported to or exported from the EU. The price slumped for all three trade flows in 2009 and 2010, in connection with the international financial and economic crisis, but recovered from 2011 onwards. The announcement of China's decision to stop importing plastic waste and several other categories of solid waste categories from the end of 2017 led to a sharp decline in extra-EU export prices in 2018. The price of extra-EU exports fell to 254€/tonne in 2018, dropping below the price of extra-EU imports (282€/tonne) for the first time. By 2019, the extra-EU export price had decreased to 247€/tonne, almost reaching the lowest level seen in 2009 (240€/tonne) at the height of the economic crisis. In 2020, the price of plastic hit a new low of 211€/tonne for extra-EU exports and 248€/tonne for extra-EU imports. The price rebounded through 2021 to 294€/tonne for extra-EU exports and 310€/tonne for extra-EU imports, peaking at 378€/tonne for extra-EU exports and 517€/tonne for extra-EU imports in 2022. In 2022, extra-EU imports had a higher price per tonne than intra-EU imports, at 494 €/tonne. In 2024, the price decreased, amounting 262€/tonne for extra-EU exports and 322€/tonne for extra-EU imports.

Figure 9

Conclusion

On 1 January 2018, China's import ban for certain waste materials came into effect. As a result, EU exports nearly halved, with the remaining exports shifting to other countries.

The European market has a significant trade surplus, and the intra-EU trade is continuing to develop.

The presented trade figures provide valuable insights for the implementation of the European thematic strategies on resources, waste prevention, recycling and the circular economy. Assessing the international trade in goods data using the same methodology, broken down by country of origin and destination, would provide an even more detailed understanding.

Source data for tables and graphs

- [Recycling -secondary material price indicators - tables and figures](#)

Data sources and availability

Eurostat's [International trade in goods statistics](#) is the data source for the presented indicators. The following paragraphs detail the international trade in goods statistics codes considered for the different waste categories.

Glass secondary materials

Glass materials are reported in international trade in goods statistics under one codes: 70010010, 70010091, 70010099 (see Table 1). Please take note that the code 70010010 'glass cullets' also contains some industrial material.

Codes in Foreign Trade Statistics (FTS) for glass waste

Proposed indicator	Price indicator and trade volume of waste glass
FTS item No	70010010: Cullet and other waste and scrap of glass (excl. glass in the form of powder, granules or flakes)
	70010091: Optical glass in the mass
	70010099: Glass in the mass (excl. optical glass)
FTS - reporting	Import (intra + extra) + exports (intra + extra)
Units	€/tonnes; 1 000 tonnes (monthly traded)
Geographical coverage	EU-27
Time coverage	Monthly from January 2004

Source: Eurostat (online data code: COMEXT)

eurostat 

Table 1: Codes in international trade in goods statistics for glass waste Source: Eurostat COMEXT

Paper and cardboard secondary materials

Paper and cardboard materials are reported in international trade in goods statistics under six codes (see Table 2). It reports three fractions of mostly industrial waste (47071000, 47072000, 47073090) and three fractions covering waste paper and cardboard collected and sorted. As all fractions are covered by the Waste Statistics Regulation, we take all six products into account for the indicator.

Codes in Foreign Trade Statistics (FTS) for paper waste

Proposed indicator	Price indicator and trade volume of waste paper
FTS codes	47071000: Recovered 'waste and scrap' paper or paperboard of unbleached kraft paper, corrugated paper or corrugated paperboard
	47072000: Recovered 'waste and scrap' paper or paperboard made mainly of bleached chemical pulp, not coloured in the mass
	47073010: Old and unsold newspapers and magazines, telephone directories, brochures and printed advertising material
	47073090: 'Waste and scrap' of paper or paperboard made mainly of mechanical pulp
	47079010: Unsorted, recovered 'waste and scrap' paper or paperboard
	47079090: Sorted, recovered 'waste and scrap' paper or paperboard
FTS - reporting	Import (intra + extra) + exports (intra + extra)
Units	euro/tonnes; 1 000 000 tonnes (monthly traded)
Geographical coverage	EU
Time coverage	monthly from January 2004

Source: Eurostat COMEXT



Table 2: Codes in international trade in goods statistics for paper and cardboard waste Source: Eurostat COMEXT

Plastic secondary materials

Plastic materials are reported in international trade in goods statistics under nine codes from 2000 to 2003, under six codes from 2004 to 2009 and five codes from 2010 onwards (see Table 3 and Table 4). In 2004, the nomenclature changed and some codes were combined. In 2010, two codes were merged to one new code. Table 3 shows the years in which data is reported under which code. Numbers 5 and 7 in the table are combined to the new position number 6. Additionally, the positions number 10, number 11 and number 12 are combined to the new position number 9. In 2010, the codes number 6 and number 9 are merged to number 8.

Changes in nomenclature for plastic waste

N°	FTS code	2000-2003	2004-2009	2010-onwards
1	39151000			
2	39152000			
3	39153000			
4	39159011			
5	39159013			
6	39159018			
7	39159019			
8	39159080			
9	39159090			
10	39159091			
11	39159093			
12	39159099			

The Foreign Trade Statistics codes are applied for the marked periods.

Source: Eurostat COMEXT

Table 3: Changes in nomenclature for plastic waste Source: Eurostat COMEXT

Codes in Foreign Trade Statistics (FTS) for plastic waste

Proposed indicator	Price indicator and trade volume of waste plastic
FTS codes	39151000: Waste, parings and scrap, of polymers of ethylene
	39152000: Waste, parings and scrap, of polymers of styrene
	39153000: Waste, parings and scrap, of polymers of vinyl chloride
	39159011: Waste, parings and scrap, of polymers of propylene
	39159013: Waste, parings and scrap, of acrylic polymers
	39159018: Waste, parings and scrap, of addition polymerization products (excl. that of polymers of ethylene, styrene and vinyl chloride and propylene)
	39159019: Waste, parings and scrap, of addition polymerization products (excl. that of acrylic polymers, polymers of ethylene, styrene and vinyl chloride and propylene)
	39159080: Waste, parings and scrap, of plastics (excl. that of polymers of ethylene, styrene, vinyl chloride and propylene)
	39159090: Waste, parings and scrap, of plastics (excl. that of addition polymerization products)
	39159091: Waste, parings and scrap, of epoxide resins
FTS – reporting	39159093: Waste, parings and scrap, of cellulose and its chemical derivatives
	39159099: Waste, parings and scrap, of plastics (excl. that of addition polymerization products, epoxide resins, cellulose and its chemical derivatives)
Units	Import (intra + extra) + exports (intra + extra)
Time coverage	euro/tonnes; 1 000 tonnes (monthly traded) acc. to Index
	Monthly from January 2004

Source: Eurostat COMEXT



Table 4: Codes in international trade in goods statistics for plastic waste Source: Eurostat COMEXT

Glass recyclates' price and value in EUR for December 2019 is estimated by Eurostat to correct a data entry error in the originally reported data.

The United Kingdom is considered an external partner country of the EU for the period covered by this article. However, until the end of the transition period (31 December 2020), the UK was part of the internal market. Thus, trade data with the UK until reference year 2020 were based on statistical concepts applicable to trade between EU Member States. Consequently, while imports from other extra-EU trade partners are grouped by country of origin, UK data reflect the country of consignment. This means goods imported from the UK were physically transported from there, but some could have originated elsewhere. Therefore, trade data with the UK until reference year 2020 are not fully comparable with data on trade with other extra-EU partners.

Context

The price indicator sums up all value (in euro) and volume (in tonnes) of all relevant international trade in goods codes. Value divided by volume gives the specific price indicator (in euro/tonne)

$$\text{price indicator} = \frac{\sum \text{value}}{\sum \text{volume}}$$

Value and volume are extracted from [international trade in goods statistics](#) as intra-EU and extra-EU trade for import, extra-EU for export. The price indicator is shown as monthly data or yearly average data.

The total volume of the traded secondary materials (import plus export) is shown as an additional indicator. This indicator (tonnes/month) shows the market activity and covers intra- and extra- trade in the EU. This indicator is shown as monthly data (tonnes/month) for a month or the yearly average (12 times tonnes/month).

International trade in goods statistics are published monthly, with a delay of approximately 2.5 months.

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- [Easy Comext](#)

Thematic section

- [Circular economy](#)
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Publications

All [publications on waste](#) issued by Eurostat.

External links

- [European Environment Agency – Waste and material resources](#)

Legislation

- Intra-EU trade (or Intrastat)- [Regulation \(EC\) No 638/2004](#) of the European Parliament and of the Council of 31 March 2004 on Community statistics relating to the trading of goods between EU Member States and repealing Council Regulation (EEC) No 3330/91 and [Commission Regulation \(EC\) No 1982/2004](#) of 18 November 2004 implementing Regulation (EC) No 638/2004.
- Extra-EU trade (or Extrastat)- [Regulation \(EC\) No 471/2009](#) of the European Parliament and of the Council of 6 May 2009 on Community statistics relating to external trade with non-member countries and repealing Council Regulation (EC) No 1172/95, [Commission Regulation \(EU\) No 113/2010](#) of 9 February 2010 implementing Regulation (EC) No 471/2009 of the European Parliament and of the Council on Community and [Commission Regulation \(EU\) No 92/2010](#) of 2 February 2010 implementing Regulation (EC) No 471/2009 of the European Parliament and of the Council on Community.
- Combined Nomenclature- [Regulation \(EC\) No 638/2004](#) of the European Parliament and of the Council of 31 March 2004 on Community statistics relating to the trading of goods between EU Member States and repealing Council Regulation (EEC) No 3330/91 and [Council Regulation \(EEC\) No 2658/87](#) of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff and [Commission Implementing Regulation \(EU\) 2021/1832](#) of 12 October 2021 amending Annex I to Council Regulation (EEC) No 2658/87 on the tariff and statistical nomenclature and on the Common Customs Tariff.
- [Regulation \(EC\) No 2150/2002 of the European Parliament and of the Council](#) of 25 November 2002 on waste statistics